

Appl. No. 10/696,215  
Amdt. Dated January 8, 2007  
Reply to Office Action of October 10, 2006

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REMARKS

This is a full and timely response to the non-final Office action mailed October 10, 2006. Reexamination and reconsideration in view of the foregoing amendments and following remarks is respectfully solicited.

Claims 1, 2, 4, 5, 7, 9-14, 16, 18-20, and 25 are pending in this application, with Claims 1, 11, 20, and 25 being the independent claims. Claims 1, 2, 4, 5, 11, 14, 20, and 25 have been amended herein, and Claims 3, 6, 8, 15, 17, and 21-24 are canceled. No new matter has been added.

Rejections Under 35 U.S.C. § 102

Claims 1, 3, 20, and 25 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by U.S. Patent No. 3,177,711 (Ham et al.). This rejection is respectfully traversed.

Independent Claims 1, 11, 20, and 25 each recite, *inter alia*, an oscillator circuit and an FM demodulator, and that the oscillator circuit is operable to generate and supply a sensor signal having a frequency that varies based on the resonant frequency of a parallel-resonant LC tank circuit, whereby the sensor signal is a frequency modulated sensor signal.

Ham et al. relates to an apparatus and method for determining flow through a turbine flowmeter, and discloses a pickup winding (20) electrically coupled in parallel with a capacitor (44) to provide tuning with resonance either when a flowmeter vane (8) is adjacent to or remote from the pickup winding (20). Ham et al. further discloses that the winding (20) and capacitor (44) provide a highly variable reactance in the feedback connection to the tap of a coil (26), which forms an LC oscillator tank circuit with another capacitor (30). As a result, "the magnitude of the [oscillator's] oscillations is modulated at a frequency directly proportional to the frequency of passage of the vanes 8 past the pickup unit." See col. 3, ll. 54-56.

Thus, it is clear that Ham et al. teaches measuring the frequency of amplitude modulation, and not the amplitude of frequency modulation. More specifically, the circuit disclosed in Ham et al. responds to the passage of the turbine vanes (8) by

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generating an amplitude signal that is modulated at the frequency of turbine blade passage. This is not the same as generating and detecting a frequency modulated signal, as is recited in each of the independent claims of the instant application. Applicant submits that some confusion may have arisen over the use of the phrase "frequency of modulation" in Ham et al. However, this phrase should not be confused with "frequency modulation." Both phrases connote different meanings to persons of ordinary skill in the art.

Moreover, it is noted that the frequency responsive device (56) disclosed in Ham et al. is merely a counter or frequency meter that is used to count the amplitude pulses in the circuit's current draw. It does not function as a frequency modulation detector. In addition, the disclosed circuit has no detector in the usual radio frequency sense of the term. Indeed, Ham et al. emphasizes the fact that the disclosed circuit includes no such demodulator (col. 1, ll. 54-57; col. 4, ll. 50-59).

In view of the foregoing, Applicant requests reconsideration and withdrawal of the § 102 rejections.

#### Rejections Under 35 U.S.C. § 103

Claim 2 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al. and U.S. Patent No. 4,644,270 (Oates et al.), Claim was variously rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ham et al., and U.S. Patent Nos. 6,658, 216 (Iida et al.); Claim 5 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al. and U.S. Patent No. 5,497,147 (Arms et al.); Claim 9 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al. and British Patent No. 2,167,603 (Wilkinson); Claims 11 and 12 were rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al. and U.S. Patent No. U.S. Patent No. 4,842,477 (Stowell); Claim 14 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al., Stowell, and Oates et al.; Claim 13 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al., Stowell, and U.S. Patent No. 4,230,436 (Davison); and Claim 18 was rejected under 35 U.S.C. § 102 as allegedly being unpatentable over Ham et al., Stowell, and Wilkinson. These

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rejections are respectfully traversed.

As was noted above, Ham et al. fails to disclose, or even remotely suggest, an oscillator that generates a variable frequency signal that is the resonant frequency of a parallel-resonant LC tank circuit formed by the sensor coil and one or more capacitance elements, nor an FM demodulator.

Oates et al. relates to a proximity sensor system and method for turbine blades and, as is pointed out in the Office action, discloses an oscillator circuit (80) for supplying a signal to a proximity sensor (S1). More specifically, Oates et al. discloses that the oscillator (80) supplies a fixed-frequency (e.g., 1 MHz) signal to the sensor (S1) via a buffer amplifier (82), a trifilar wound transformer (T1), and a three-conductor shielded cable (88) (col. 4, ll. 49-58; FIG. 5). As is clear from the description and corresponding illustrations, the oscillator (80) generates and supplies a **fixed-frequency** signal, and does not generate and supply a variable frequency signal having a frequency that varies based on the proximity of the sensor coil to the turbine blades, let alone an oscillator that generates a variable frequency signal that is the resonant frequency of a parallel-resonant LC tank circuit formed by the sensor coil and one or more capacitance elements, or an FM demodulator, as is now recited in each of independent Claims 1, 11, 20, and 25.

Moreover, none of the other cited references, namely Iida et al., Arms et al., Wilkinson, Stowell, and Davison disclose or suggest at least the above-noted feature of independent Claims 1, 11, 20, and 25. As such, none of the claims that depend therefrom are either anticipated or rendered obvious.

In view of the foregoing, Applicant requests reconsideration and withdrawal of the § 103 rejections.

#### Conclusion

Based on the above, independent Claims 1, 11, 20, and 25 are patentable over the citations of record. The dependent claims are also submitted to be patentable for the reasons given above with respect to the independent claims and because each recite features which are patentable in its own right. Individual consideration of the dependent claims is respectfully solicited.

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The other art of record is also not understood to disclose or suggest the inventive concept of the present invention as defined by the claims.

Hence, Applicant submits that the present application is in condition for allowance. Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-noted Office action, and an early Notice of Allowance are requested.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

If for some reason Applicant has not paid a sufficient fee for this response, please consider this as authorization to charge Ingrassia, Fisher & Lorenz, Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

INGRASSIA FISHER & LORENZ

Dated: January 8, 2007

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